

## Patent claims

1. Device for performing safety functions in areas with high frequency radiation, such as in the sample chamber of a microwave treatment system, in which substances are exposed to the effect of one or more high frequency fields, characterised in that in the chamber (5) with high frequency radiation, at least one sensor (8, 13) that does not react to and does not affect the high frequency radiation is arranged to detect process-critical states such as excess temperatures, which is connected with an already known safety device such as a fire extinguishing system (1) or a cooling unit with inert gases.
2. Device according to claim 1, characterised in that the sensor (8, 13) for temperature detection is designed as a pressure line (3 or 10) that allows high frequencies to pass through it and that is located in the chamber (5) or protrudes into it with a seal (8, 13) that is pressure-stable and likewise allows high frequencies to pass through it and has a low melting temperature.
3. Device according to claim 2, characterised in that the pressure-stable seal (8, 13) that allows high frequencies to pass through it, comprises plastic, for example polyethylene, polypropylene, polystyrene or a combination of these and other plastics.
4. Device according to claim 2, characterised in that the pressure line (3 or 10) is run into the chamber (5) as a rigid pipe.
5. Device according to claim 2, characterised in that the pressure line (3 or 5) is run into the chamber as a flexible pipe or tube.
6. Device according to claim 2, characterised in that the pressure line is at the same time envisaged as a functional element of the safety device, such as a pressurised line (3) of a fire extinguishing system (1) for carrying an already known extinguishing agent (2).

7. Device according to claim 2, characterised in that the pressure line (10) is designed independently of the functional element of the safety device (1), and is connected to a pressure-sensitive controller, such as a pressure valve (11) for activation of the safety device (1).

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8. Device according to claim 7, characterised in that the pressure-sensitive controller (11) is also connected with other, already known, sensors such as pressure, temperature and humidity sensors, for monitoring of safety and/or process conditions.